

CLAIMS

WE CLAIM:

1. An electronic test system for testing an electronic device under test (DUT), said test system comprising:

an electronic processor;

an electronic memory coupled to said electronic processor;

a hierarchical program structure residing in said memory and executed by said processor, said hierarchical program structure having multiple levels including a measurement level corresponding to a measurement to be performed on said DUT, a test level corresponding to one or more of said measurements, and a procedure level corresponding to an ordered list of said tests to be performed on said DUT.

2. An electronic test system as in claim 1 wherein said hierarchical program structure further includes a datapoint level corresponding to a single result of a measurement, and said measurement level includes a plurality of said datapoints.

3. An electronic test system for testing an electronic device under test (DUT), said test system comprising:

an electronic processor;

an electronic memory coupled to said electronic processor;

a hierarchical program structure residing in said memory and executed by said processor, said hierarchical program structure having multiple levels including a measurement level corresponding to a measurement to be performed on said DUT, a test level corresponding to one or more of said measurements, and a procedure level corresponding to an ordered list of said tests to be performed on said DUT, each said level embodied in said electronic test system as a software object.

4. An electronic test system as in claim 3 wherein said hierarchical program structure further includes a datapoint level, and said measurement level corresponds to a group of said datapoints, said datapoint level embodied in said electronic test system as a datapoint software object.

5. An electronic test system as in claim 3 wherein said hierarchical program structure further includes a product model level corresponding to a set of procedures for testing a family of said DUT.

6. An electronic system as in claim 5 wherein said set of procedures in said product model level are stored in a DLL file.

7. An electronic test system as in claim 3 wherein said procedure objects comprises a structure of component object model (COM) objects.

8. An electronic test system as in claim 3 wherein said test object defines a test algorithm.

9. An electronic test system as in claim 3 wherein said test algorithm comprises one or more electronic operations defined by software code, and the electronic parameters for said electronic functions are provided by said measurement object.

10. An electronic system in claim 3 wherein said test object contains said measurement object, and said measurement object contains said datapoint object.

11. An electronic test system comprising:

an electronic processor;

an electronic memory coupled to said electronic processor;

a hierarchical structure residing in the memory and executed by said processor, said hierarchical structure having multiple levels, each level embodied in the electronic test system as a function defined by a class, wherein the implementation of the function is defined by the user of the hierarchical structure by implementing the class; said classes including a measurement class corresponding to a measurement to be performed on said device, a test class corresponding to one or more related measurements, and a procedure class corresponding to an ordered list of tests to be performed on said device.

12. An electronic test system as in claim 11 wherein said hierarchical structure further includes a datapoint class linked to said measurement class.

13. An electronic test system as in claim 11 and further comprising: a test software class, the test software class defining: a test software object; a set of object methods, the set of object methods defining: an object method that displays information to a user of the apparatus, an object method that is responsive to changes in the test software and is capable of creating the procedure object, an object method capable of creating the test object, an object method capable of creating the

measurement object, an object method capable of creating the datapoint object, and an object method capable of beginning and ending a selected procedure.

14. An electronic test system as in claim 11 wherein the electronic test system further comprises: a software object method capable of beginning and ending said procedure, and a software object method capable of beginning and ending said test.

15. An electronic test system as in claim 11, and further comprising a chamber driver residing in said memory, said chamber driver capable of controlling a temperature output device and a humidity output device.

16. An electronic test system as in claim 11 wherein said electronic processor further is adapted for electronically communicating with said DUT for executing said test software on said DUT and receiving a plurality of electronic outputs from said DUT corresponding to said measurement objects and said datapoint objects.

17. An electronic test system as in claim 11, and further comprising a manual input device communicating with said processor, said manual input device selected from the group consisting of a keyboard, a knob, a spin control, a mouse, a joy stick, a touch pad, and a roller ball.

18. An electronic test system as in claim 11, and further comprising plug-in software code components residing in said memory and providing an interface to other systems.

19. An electronic test system as in claim 11, and further comprising COM control interface residing in said memory permitting said test system to be initiated and monitored from other systems.

20. An electronic test system as in claim 19 wherein said COM control interface comprises an ActiveX™ COM interface.

21. A method for producing an electronic test system software program for testing an electronic device under test (DUT), said program including a hierarchical structure having multiple levels including a measurement level corresponding to a measurement to be performed on said DUT, a test level corresponding to one or more of said measurements, and a procedure level corresponding to an ordered list of said tests to be performed on said DUT, each level embodied in said program as a

software object for testing a device under test (DUT), said method comprising the steps of:

providing a set of functions wherein the implementation of the functions is defined by said hierarchical structure;

- 5 implementing the functions to define said test system software program;
- generating said electronic test system software objects by implementing said functions; and
- utilizing said software objects to test said DUT.

22. A method for producing an electronic test system software program as
10 in claim 21 wherein said hierarchical structure further includes a datapoint level which is a subset of said measurement level.

23. A computer-readable medium on which is stored a program for testing an electronic device under test (DUT), said computer program comprising:

15 a measurement software object corresponding to a measurement to be performed on said DUT;

 a test software object defining a test algorithm utilizing parameters provided by said measurement object and corresponding to a test to be performed on said DUT;

 a procedure software object corresponding to an ordered list of said tests to be performed on said DUT; and

20 a plurality of software pointers linking said measurement object, said test object, and said procedure object.

24. A computer-readable medium as in claim 23, and further including a datapoint object linked to said measurement object.

25 25. An electronic test system for testing a device under test (DUT), said test system comprising:

 an electronic processor;

 an electronic memory coupled to said electronic processor;

30 a procedure residing in said memory and executed by said processor, said procedure embodied in the electronic test system as a software object for testing a device under test (DUT), wherein the procedure comprises: a function defined by a class, wherein the implementation of the function is defined by the user of the test

system by implementing the class; the procedure object including: a first set of software object methods in the procedure object to perform a plurality of predetermined functions to implement said procedure object.

26. An electronic test system as in claim 22 and further comprising: a test class defining a test object corresponding to a test to be performed on said DUT, a second set of object methods for creating said test; and said procedure object containing said test object.

27. A method for producing an electronic test program in which the test procedure is separate from the test algorithm, the method comprising the steps of:

providing a software storage medium containing an object oriented program including: software code implementing said test algorithm in a test class defining software object methods; and a set of functions defining said procedure;

implementing said functions to produce classes to further define said procedure; and

generating said test procedure separate from said test class defined object methods by implementing the functions to provide a list of tests to be run and a list of measurements which provide parameters for each of said tests.